lower seal **157** of the plunger **150** in combination with the passageway **116**. In the embodiment illustrated in FIG. **1**, the means for transferring the concentration agent **130** from the upper receptacle **120** to the lower receptacle **124** includes the passageway **116** and the first lower seal **156** and second lower seal **157** of the plunger **150**.

[0100] FIG. **2**A shows a cross-sectional view of a plunger **250** and a partially-exploded cross-sectional view of a housing **210**, which are components of one embodiment of a detection device **200** according to the present invention. The housing **210** includes an upper part **212** adjacent a lower part **214**. The upper part **212** and lower part **214** can be formed as described above.

[0101] At the end of the upper part **212** distal the lower part **214**, is an opening **213** that is dimensioned to receive the plunger **250**. At the opposite end of the upper part **212** is a passageway **216**, as described above. Adjacent the passageway **216** is an optional taper region **218**, as described herein. Frangible seals **260***a* and **260***b* divide the housing into the upper receptacle **220**, lower receptacle **224**, and third receptacle **226**. Frangible seals **260***a* and **260***b* are preferably made from a water-resistant material (e.g., a thin polymeric film, a polymer-coated paper, a thin foil) and can be secured to the walls of the housing **210** using materials and/or processes that are known in the art (e.g., an adhesive, heat-sealing, ultrasonic welding) to form a water-resistant frangible barrier.

[0102] Located in the third receptacle **226** is a hydrogel **262** comprising a cell extractant. Suitable hydrogels comprising a cell extractant are described in U.S. Patent Application No. 61/101,546, filed on Sep. 30, 2008, and entitled "BIODETECTION ARTICLES", which is incorporated herein by reference in its entirety.

[0103] The relative proportions of the three receptacles in FIG. **2**A are merely illustrative and can be adapted, as necessary to accommodate various parameters, such as sample volume and/or instrument limitations. Also shown in FIG. **2**A are an optional concentration agent **230**, optional detection reagent **265** as described herein and optional removable cap **278**. Cap **278** can be made from, for example, a polymeric material (e.g., polyethylene, polypropylene) using processes known in the art (e.g., molding) and can be dimensioned to form a liquid-resistant cover for the housing **210**.

[0104] The plunger **250** comprises a shaft **251** with a handle **252** at one end and the lower seal **256** and piercing end **259** at the opposite end. Preferably, the lower seal **256** dimensioned to contact the walls of the passageway **216** and is made of a suitable material (e.g., poly propylene, butyl rubber) to form a barrier, preferably a liquid-resistant barrier, in the passageway **216**. Optionally, the plunger **250** can comprise one or more upper seals **254** as described above. The relative distances between the handle **252**, lower seal **256** and the piercing end **259** are described below.

[0105] FIG. **2**B shows a cross-sectional view of the device **200** of FIG. **2**A. In this view, the housing **210** further comprises a liquid sample **240** in the upper receptacle **220**. The cap **278** is firmly seated on the housing **210** and, thus, the liquid sample **240** can be mixed with the cell concentration agent **230** by processes that are known in the art such as, for example, vortexing, vibrating, shaking, or inverting the housing **210**. After mixing, the cell concentration agent **230** can be allowed to settle onto the frangible seal **260***a* in the passageway **216**.

[0106] FIG. **2**C shows a cross-sectional view of the device **200** comprising the housing **210** of FIG. **2**B with a plunger **250** partially inserted therein. In this position, the lower seal **256** of the plunger **250** contacts the walls of the passageway **216**, thereby isolating in the passageway **216** at least a portion **242** from the rest of the liquid sample **240**. Also isolated in the passageway **216** is the cell concentration agent **230**.

[0107] FIG. **2**D shows a cross-sectional view of the device **200** of FIG. **2**C with the plunger **250** fully inserted therein. The lower seal **256** of the plunger **250** contacts the walls of the passageway **216** and the piercing end **259** has punctured frangible seals **260***a* and **260***b*, thereby transferring the portion **242** of the liquid sample, the cell concentration agent **230**, and the hydrogel **262** into the lower receptacle **224**, where the portion **242** can interact with optional detection reagent **265** (shown in FIG. **2**A), if present. Non-limiting examples of interactions between the portion **242** and the detection reagent **265** include dissolution and/or suspension of the detection reagent, binding interactions between the detection reagent and a biological analyte present in the portion, and/or a catalytic reaction.

[0108] In the illustrated embodiment of FIG. **2**, the means for isolating the upper receptacle **220** from the lower receptacle **224** includes the frangible seals **260***a* and **260***b*. Means for isolating the upper receptacle **220** from the lower receptacle **224** can also include the lower seal **256** of the plunger **250** in combination with the passageway **216**. In the illustrated embodiment of FIG. **2**, the means for transferring the cell concentration agent **230** from the upper receptacle **220** to the lower receptacle **224** includes the piercing end **259** and lower seal **256** of the plunger **250** and the passageway **216**.

[0109] FIG. **3**A shows a front view of one embodiment of a detection device **300** according to the present disclosure. The device **300** includes a housing **310** and an optional cap **378**. The housing **310** can be constructed as described above with an upper part **312**, a passageway **316**, and a lower part **314**. The optional cap **378** can be constructed as described above. The device **300** also includes a dead-end valve **370** with a valve actuator **372**, which is shown in a first position in FIG. **3**A. FIG. **3**B shows a side view of the device **300** and valve actuator **372** of FIG. **3**A.

[0110] FIG. **3**C show a cross-sectional view of the device **300** shown in FIG. **3**A. The device **300** comprises a cap **378** and a housing **310**. The housing **310** includes an upper part **312** and lower part **314**. The upper part **312** includes a passageway **316** in which a dead-end valve **370** is positioned. The dead-end valve **370** includes a valve cavity **374** which, when the valve is in this first position, is in fluid communication with the upper receptacle **320**. The valve cavity **374** includes an optional cell concentration agent **330**, which contacts a liquid sample **340** in the upper receptacle **320**. The lower receptacle **324** contains an optional hydrogel **362** and/or optional detection reagent **365**, both as described herein. Also shown in FIG. **3**C is optional taper region **318**, as described herein.

[0111] FIG. **3**D shows a cross-sectional view of the device **300** from FIG. **3**C with the valve **370** in a second position. When the valve **370** is in the second position, a portion **342** of the liquid sample, containing the cell concentration agent **330**, is isolated and transferred to the lower receptacle **324** where the portion **342** can contact the hydrogel **362**, if present, and can interact with the detection reagent **365**, if present, as described herein.

[0112] It is recognized that the dimensions of the valve cavity **374** can constitute a known predetermined volume and that, as such, the valve **370** can be used one or more times to